

ABSTRACT

Methods of forming a uniform cell nitride dielectric layer over varying substrate materials such as an insulation material and a conductive or semiconductive material, methods of forming capacitors having a uniform nitride dielectric layer deposited onto varying substrate materials such as an insulation layer and overlying conductive or semiconductive electrode, and capacitors formed from such methods are provided. In one embodiment of forming a uniform cell nitride layer in a capacitor construction, a surface-modifying agent is implanted into exposed surfaces of an insulation layer of a capacitor container by low angle implantation to alter the surface properties of the insulation layer for enhanced nucleation of the depositing cell nitride material, preferably while rotating the substrate for adequate implantation of the modifying substance along the top corner portion of the container. The resulting cell nitride layer has a uniform thickness over the insulation layer and the lower electrode, thus eliminating punch-through and corner leakage problems. The capacitors are particularly useful in fabricating DRAM cells.

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